

Related Occupations

Carpenters are skilled construction workers. Workers in other skilled construction occupations include bricklayers, cement masons, concrete finishers, electricians, pipefitters, plasterers, plumbers, stone-masons, and terrazzo workers.

Sources of Additional Information

For information about carpentry apprenticeships or other work opportunities in this trade, contact local carpentry contractors, locals of the union mentioned above, local joint union-contractor apprenticeship committees, or the nearest office of the State employment service or State apprenticeship agency.

For general information about carpentry, contact:

➤ Associated Builders and Contractors, 1300 North 17th St., Rosslyn, VA 22209.

➤ Associated General Contractors of America, Inc., 1957 E St. NW., Washington, DC 20006.

➤ Home Builders Institute, National Association of Home Builders, 1201 15th St. NW., Washington, DC 20005.

➤ United Brotherhood of Carpenters and Joiners of America, 101 Constitution Ave. NW., Washington, DC 20001.

Carpet, Floor, and Tile Installers and Finishers

(O*NET 87308, 87602, 87605, and 87608)

Significant Points

- Over one-half of carpet, floor, and tile installers and finishers are self-employed.
- Working conditions are generally more pleasant than those of other construction trades, because carpet and tile and other floor coverings are installed in finished, or nearly finished, structures.
- Carpet, floor, and tile installers and finishers are less likely than other construction trades to be idled by slowdowns in construction or inclement weather.

Nature of the Work

Carpet, tile, and other types of floor coverings serve an important function in buildings, but their decorative qualities also contribute to the appeal of the buildings. Carpet, floor, and tile installers lay these floor coverings in homes, offices, hospitals, stores, restaurants, and many other types of buildings.

Before installing carpet, *carpet installers* first inspect the surface to be covered to determine its condition and, if necessary, correct any imperfections that could show through the carpet or cause the carpet to wear unevenly. They must measure the area to be carpeted and plan the layout, keeping in mind expected traffic patterns and placement of seams for best appearance and maximum wear.

When installing wall-to-wall carpet without tacks, installers first fasten a tackless strip to the floor, next to the wall. They then install the padded cushion or underlay. Next, they roll out, measure, mark, and cut the carpet, allowing for 2 to 3 inches of extra carpet for the final fitting. Using a device called a “knee kicker”, they position the carpet, stretching it to fit evenly on the floor and snugly against each wall and door threshold. They then rough cut the excess carpet. Finally, using a power stretcher, they stretch the carpet, hooking it to the tackless strip to hold it in place. The installer then finishes the edges using a wall trimmer.

Because most carpet comes in 12-foot widths, wall-to-wall installations require installers to tape or sew sections together for large rooms. They join the seams by sewing them with a large needle and special thread or by using heat-taped seams—a special plastic tape made to join seams when activated with heat.

On special upholstery work, such as stairs, carpet may be held in place with staples. Also, in commercial installations, carpet is often glued directly to the floor or to padding that has been glued to the floor.

Carpet installers use handtools such as hammers, drills, staple guns, carpet knives, and rubber mallets. They also may use carpet-laying tools, such as carpet shears, knee kickers, wall trimmers, loop pile cutters, heat irons, and power stretchers.

Tile installers, or *tilesetters*, apply tile to floors, walls, and ceilings. Tile is durable, impervious to water, and easy to clean, making it a popular building material in hospitals, tunnels, lobbies of buildings, bathrooms, and kitchens. To set tile, which generally ranges in size from 1 inch to 12 inches square, tilesetters use cement or “mastic,” a very sticky paste. When using cement, tilesetters nail a support of metal mesh to the wall or ceiling to be tiled. They use a trowel to apply a cement mortar—called a “scratch coat”—onto the metal screen and scratch the surface of the soft mortar with a small tool, similar to a rake. After the scratch coat has dried, tilesetters apply another coat of mortar to level the surface and then apply mortar to the back of the tile and place it onto the surface.

To set tile in mastic or a cement adhesive, called “thin set,” tilesetters need a flat, solid surface such as drywall, concrete, plaster, or wood. They use a tooth-edged trowel to spread mastic on the surface or apply cement adhesive to the back of the tile and then properly position it.

Because tile varies in color, shape, and size, workers sometimes prearrange tiles on a dry floor according to a specified design. This allows workers to examine the pattern and make changes. In order to cover all exposed areas, including corners and around pipes, tubs, and wash basins, tilesetters cut tiles to fit with a machine saw or a special cutting tool. Once the tile is placed, they gently tap the surface with their trowel handle or a small block of wood to seat the tiles evenly.

When the cement or mastic has set, tilesetters fill the joints with “grout,” very fine cement. They then scrape the surface with a rubber-edged device called a “squeegee” to dress the joints and remove excess grout. Before the grout sets, they finish the joints with a damp sponge for a uniform appearance. *Tile finishers* help some tilesetters by supplying and mixing construction materials and doing other tasks such as applying grout and cleaning installed tile.

Floor installers, or *floor layers*, apply blocks, strips, or sheets of shock-absorbing, sound-deadening, or decorative coverings to floors and cabinets using rollers, knives, trowels, sanding machines and other tools. Before installing the floor, floor layers inspect the surface to be covered and, if necessary, correct any imperfections in order to start with a smooth, clean foundation. They measure and cut floor covering materials, such as rubber, linoleum, or cork, and any foundation material, such as felt, according to designated blueprints. Next, they use an adhesive to cement the foundation material to the floor; the foundation helps to deaden sound and prevents the



Carpet installers tape or sew sections together for large rooms.

top floor covering from wearing at board joints. Finally, floor layers install the top covering. They join sections of sheet covering by overlapping adjoining edges and cutting through both layers with a knife to form a tight joint.

Working Conditions

Carpet, floor, and tile installers and finishers generally work indoors and regular daytime hours. However, when carpet installers recarpet stores or offices, they may work evenings and weekends to avoid disturbing customers or employees. Installers and finishers usually work under better conditions than most other construction workers. By the time workers install carpets, flooring, or tile in a new structure, most construction has been completed and the work area is relatively clean and uncluttered. Installing these materials is labor intensive; workers spend much of their time bending, kneeling, and reaching—activities that require endurance. Carpet installers frequently lift heavy rolls of carpet and may move heavy furniture. Safety regulations may require that they wear kneepads or safety goggles when using certain tools.

Although workers are subject to cuts from tools or materials, falls from ladders, and strained muscles, the occupation is not as hazardous as some other construction occupations.

Employment

Carpet, floor, and tile installers and finishers held about 138,000 jobs in 1998. Over one-half of all carpet, floor, and tile installers and finishers were self-employed compared to 1 of every 5 construction workers.

Many carpet installers worked for flooring contractors or floor covering retailers. Most wage and salary tilesetters were employed by tiling contractors who work mainly on nonresidential construction projects, such as schools, hospitals, and office buildings. Most self-employed tilesetters work on residential projects.

Although carpet, floor, and tile installers and finishers are employed throughout the Nation, they tend to be concentrated in populated areas where there are high levels of construction activity.

Training, Other Qualifications, and Advancement

The vast majority of carpet, floor, and tile installers and finishers learn their trade informally, on the job, as helpers to experienced workers. Others learn through formal apprenticeship programs, which include on-the-job training as well as related classroom instruction.

Informal training for carpet installers is often sponsored by individual contractors and generally lasts from about 1 1/2 to 2 years. Workers start as helpers, and begin with simple assignments, such as installing stripping and padding, or helping stretch newly installed carpet. With experience, helpers take on more difficult assignments, such as measuring, cutting, and fitting.

Persons who wish to begin a career in carpet installation as a helper or apprentice should be at least 18 years old and have good manual dexterity. Many employers prefer applicants with a high school diploma; courses in general mathematics and shop are helpful. Some employers may require a driver's license and a criminal background check. Because carpet installers frequently deal directly with customers, they should be courteous and tactful.

Many tile and floor layers learn their job through on-the-job training and begin by learning about the tools of the trade. They next learn to mix and apply cement. As they progress, tilesetters and floor layers learn to cut and install tile and floor coverings. Tile setters also learn to apply grout, and do finishing work.

Apprenticeship programs and some contractor-sponsored programs provide comprehensive training in all phases of the tiling and floor layer trade. Most apprenticeship programs are union sponsored and consist of weekly classes and on-the-job training usually lasting 3 to 4 years.

When hiring apprentices or helpers for floor layer and tilesetter jobs, employers usually prefer high school graduates who have had courses

in general mathematics, mechanical drawing, and shop. Good physical condition, manual dexterity, and a good sense of color harmony also are important assets.

Carpet, floor, and tile installers and finishers may advance to positions as supervisors or become salespersons or estimators. Some carpet installers may become managers for large installation firms. Many carpet, floor, and tile installers and finishers who begin working for a large contractor eventually go into business for themselves as independent subcontractors.

Job Outlook

Employment of carpet, floor, and tile installers and finishers is expected to grow more slowly than the average for all occupations through the year 2008. Growth of carpet installers and floor layers will be due primarily to the continued need to renovate and refurbish existing structures. Carpet as a floor covering continues to be popular and its usage is expected to grow in structures such as schools, offices, hospitals, and industrial plants.

Demand for carpet will also be stimulated by new, more durable fibers that are stain and crush resistant, and come in a wider variety of colors. More resilient carpet needs to be replaced less often, but these attractive new products may induce more people to replace their old carpeting, contributing further to the demand for carpet installers.

Job opportunities for carpet installers are expected to be excellent as the growth in demand outpaces the supply of workers trained in this craft. This occupation is less sensitive to changes in economic conditions than most other construction occupations, because much of the work involves replacing carpet in existing buildings, and renovation work usually allows employment of carpet installers to remain relatively stable. In the many houses built with plywood rather than hardwood floors, wall-to-wall carpeting is a necessity. Similarly, offices, hotels, and stores often cover concrete floors with wall-to-wall carpet, which must be periodically replaced.

Demand for tilesetters will stem from population and business growth, which should result in more construction of shopping malls, hospitals, schools, restaurants, and other structures where tile is used extensively. Tile is expected to continue to increase in popularity as a building material and be used more extensively, particularly in more expensive homes, whose construction is expected to increase. In more modestly priced homes, however, the use of tile substitutes, such as plastic or fiberglass tub and shower enclosures, is expected to increase, slowing the growth in demand for tilesetters.

Job opportunities for tilesetters will not be as plentiful as in other construction occupations because the occupation is small and turnover is relatively low.

Earnings

In 1998, the median hourly earnings of carpet installers were \$12.73. The middle 50 percent earned between \$9.91 and \$18.77. The lowest 10 percent earned less than \$6.94 and the top 10 percent earned more than \$24.05. Median hourly earnings in the industries employing the largest numbers of carpet installers in 1997 are shown below:

Carpentry and floor work	\$13.90
Furniture and home furnishings stores	10.90

Carpet installers are paid either on an hourly basis, or by the number of yards of carpet installed. The rates vary widely depending on the geographic location and whether the installer is affiliated with a union.

Median hourly earnings of tilesetters were \$16.26 in 1998. The middle 50 percent earned between \$11.97 and \$20.68. The lowest 10 percent earned less than \$8.92 and the top 10 percent earned more than \$25.52. Earnings of tilesetters also vary greatly by geographic location and by union membership.

In 1998, the median hourly earnings of all other full-time carpet, floor, and tile installers and finishers were \$12.42.

Apprentices and other trainees usually start out earning about half of what an experienced worker earns, though their wage rate increases as they advance through the training program.

Some carpet installers, floor layers, and tilers belong to the United Brotherhood of Carpenters and Joiners of America. Some tilers also belong to the International Union of Bricklayers and Allied Craftsmen, while some carpet installers belong to the International Brotherhood of Painters and Allied Trades.

Related Occupations

Carpet, floor, and tile installers and finishers measure, cut, and fit materials to cover a space. Workers in other occupations involving similar skills but using different materials, include bricklayers, carpenters, cement masons, concrete finishers, drywall installers and finishers, marblers, painters and paperhangers, roofers, sheet-metal workers, stonemasons, and terrazzo workers.

Sources of Additional Information

For details about apprenticeships or work opportunities, contact local flooring or tiling contractors or retailers; locals of the unions previously mentioned; or the nearest office of the State apprenticeship agency or the State employment service.

For general information about the work of carpet installers and floor layers, contact:

☛ Floor Covering Installation Contractors Association, P.O. Box 948, Dalton, GA 30722-0948.

Additional information on training for carpet installers and floor layers is available from:

☛ International Brotherhood of Painters and Allied Trades, 1750 New York Ave. NW., Washington, DC 20006.

For general information about the work of tilers and finishers, contact:

☛ International Union of Bricklayers and Allied Craftsmen, International Masonry Institute, Apprenticeship and Training, 815 15th St. NW., Washington, DC 20005.

For information concerning training of carpet installers, floor and tile setters, and finishers contact:

☛ United Brotherhood of Carpenters and Joiners of America, 101 Constitution Ave. NW., Washington, DC 20001.

a site for placing concrete, cement masons first set the forms for holding the concrete to the desired pitch and depth and properly align them. They then direct the casting of the concrete and supervise laborers who use shovels or special tools to spread it. Masons then guide a straightedge back and forth across the top of the forms to “screed,” or level, the freshly placed concrete. Immediately after leveling the concrete, masons carefully smooth the concrete surface with a “bull float,” a long-handled tool about 8 by 48 inches that covers the coarser materials in the concrete and brings a rich mixture of fine cement paste to the surface.

After the concrete has been leveled and floated, *concrete finishers* press an edger between the forms and the concrete and guide it along the edge and the surface. This produces slightly rounded edges and helps prevent chipping or cracking. They use a special tool called a “groover” to make joints or grooves at specific intervals that help control cracking. Next, finishers trowel the surface using either a powered or a hand trowel, a small, smooth, rectangular metal tool.

Sometimes, cement masons perform all steps of laying concrete, including the finishing. As the final step, masons retrowel the concrete surface back and forth with powered and hand trowels to create a smooth finish. For a coarse, nonskid finish, masons brush the surface with a broom or stiff-bristled brush. For a pebble finish, they embed small gravel chips into the surface. They then wash any excess cement from the exposed chips with a mild acid solution. For color, they use colored premixed concrete. On concrete surfaces that will remain exposed after forms are stripped, such as columns, ceilings, and wall panels, cement masons cut away high spots and loose concrete with hammer and chisel, fill any large indentations with a Portland cement paste and smooth the surface with a rubbing carborundum stone. Finally, they coat the exposed area with a rich Portland cement mixture using either a special tool or a coarse cloth to rub the concrete to a uniform finish.

Throughout the entire process cement masons must monitor how the wind, heat, or cold effects the curing of the concrete. They must have a thorough knowledge of concrete characteristics so that by using sight and touch they can determine what is happening to the concrete and take measures to prevent defects.

Terrazzo workers create attractive walkways, floors, patios, and panels by exposing marble chips and other fine aggregates on the surface of finished concrete. Much of the preliminary work of terrazzo workers is similar to that of cement masons.

Cement Masons, Concrete Finishers, and Terrazzo Workers

(O*NET 87311)

Significant Points

- Employment of cement masons, concrete finishers, and terrazzo workers will increase slowly as new technology makes these workers more productive.
- Most learn their trade on the job, either through formal 3-year apprenticeship programs or by working as helpers.
- Jobs are often outdoors and require a lot of bending and kneeling.

Nature of the Work

Cement masons, concrete finishers, and terrazzo workers all work with concrete, one of the most common and durable materials used in construction jobs. Once set, concrete—a mixture of Portland cement, sand, gravel, and water—becomes the foundation for everything from decorative patios and floors to huge dams or miles of roadways.

Cement masons place and finish the concrete. They may also color concrete surfaces, expose aggregate (small stones) in walls and sidewalks, or fabricate concrete beams, columns, and panels. In preparing



When laying sidewalks, concrete masons carefully smooth the surface.